

noted. Applicant respectfully submits that this response is timely filed. Claims 13-17 and 19-30 were pending in the present application prior to the aforementioned amendment. By the above Amendment, claims 14, 15, 19 and 20 have been canceled without prejudice and claims 13, 16, 17, 21, and 26 have been amended to more clearly recite subject matter which Applicant is already entitled. Applicant submits that no issue of new matter has been set forth by this Amendment. Accordingly, claims 13, 16, 17 and 21-30 are now pending in the subject application and are believed to be in condition for allowance at least for the reasons advanced hereinbelow.

The Office Action rejects claims 13-17, 19-21, 23-26 and 28-29 under 35 U.S.C. §103(a) as unpatentable over *Takagi et al.* (U.S. Patent No. 4,539,068) in view of *Fujiyama et al.* (U.S. Patent No. 4,529,474), and claims 22 and 27 under 35 U.S.C. §103(a) as unpatentable over *Takagi et al.* '068 in view of *Fujiyama et al.* '474 and *Tanaka et al.* (U.S. Patent No. 4,525,381). By the above Amendment, claims 14, 15, 19 and 20 have been canceled without prejudice, thereby rendering the rejection with respect thereto moot. Moreover, claims 13, 16, 17, 21, and 26 have been amended to more clearly recite subject matter which is clearly patentably distinct over the prior art of record.

As presently recited at least in claim 13, the claimed invention is directed generally to a vapor reaction method comprising the steps of preparing a pair of first and second electrodes within a reaction chamber, exciting a first film forming gas in order to form a first insulating film by a first vapor deposition on a substrate placed in said reaction chamber, exciting a second film forming gas in order to form a second insulating film by a second vapor deposition on said first insulating film in said reaction chamber, wherein said first and second insulating films contact each other, and exciting a cleaning gas in order to remove unnecessary layers caused the first and second vapor depositions from an inside of

three criteria must be met to establish. *M.P.E.P.* §2143. First, there must be some teaching, suggestion, or motivation to combine or modify the teachings of the prior art to produce the claimed invention, found either in the references themselves or in the knowledge generally available to a skilled artisan. *In re Fine*, 837 F.2d 1071, 5 USPQ.2d 1596 (Fed. Cir. 1988). Second, there must be a reasonable expectation of success. *In re Rhinchart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976). And third, the prior art must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

Applicant respectfully contends that the claims as presently recited set forth subject matter which is clearly patentably distinct over the prior art of record. More particularly, Applicant respectfully contends that the *Takagi et al.* '068 patent, either alone or in combination with the *Fujiyama et al.* '474 and *Tanaka et al.* patents, fails to expressly teach or inherently suggest all of the limitations presently set forth in the claimed invention necessary to support a *prima facie* case of obviousness under §103. Nor is there any motivation in the prior art of record to modify the *Takagi et al.* '068 patent to thereby accomplish what is set forth in the claimed invention.

Referring now to the Office Action, whereby the *Takagi et al.* '068 patent is relied upon for disclosing a plasma CVD apparatus wherein the first and second electrodes are parallel, the substrate sits on the first electrode with one substrate side facing the second electrode, and the second electrode has holes in it that pass multiple deposition gases through the second electrode. The Examiner contends that it was well known "long before the 1980s" to form multiple layers insulating materials and that it would have been obvious to modify the in the deposition apparatus of the *Takagi et al.* '068 patent to use the cleaning gas disclosed in the *Fujiyama et al.* '474 patent in situations when working with silicon oxide based deposits. By the above Amendment, at least claim 16, 17, 21 and 26 have been

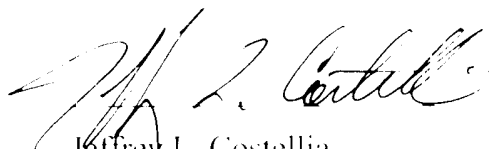
Action that the *Fujiyama et al.* '474 patent actually teaches away from the use of silicon nitride and silicon fluoride, there is no motivation to combine the references in a manner that would render obvious such a feature.

In view of the Office Action finding that "the claims do not require the first and second deposition layers to be touching", at least claim 13 has been amended to recite wherein said first and second insulating films contact each other. Such a feature is not expressly disclosed or inherently suggested by the prior art of record, namely, the *Takagi et al.* '068, *Fujiyama et al.* '474 and *Tanaka et al.* patents.

Accordingly, Applicant respectfully submits that the pending claims are in proper condition for allowance and consideration and withdrawal of the pending rejections are requested. If the Examiner believes further discussions with Applicant's representative would be beneficial in this case, he is invited to contact the undersigned.

Respectfully submitted,

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MARKED UP VERSION OF AMENDED CLAIMS

13. (Twice Amended) A vapor reaction method comprising the steps of:
preparing a pair of first and second electrodes within a reaction chamber, said pair of electrodes being arranged substantially in parallel with each other;
placing a substrate in [a] the reaction chamber on said first electrode so that a first surface of said substrate faces toward said second electrode;
introducing a first film forming gas into said reaction chamber through said second electrode;
exciting said first film forming gas in order to form a first insulating film by first vapor deposition on said substrate placed in said reaction chamber;
introducing a second film forming gas into said reaction chamber through said second electrode;
exciting said second film forming gas in order to form a second insulating film by a second vapor deposition on said first insulating film in said reaction chamber wherein said first and second insulating films contact each other;
removing said substrate from said reaction chamber after [said vapor deposition] the formation of the first and second insulating films;
introducing a cleaning gas comprising nitrogen fluoride into said reaction chamber through said second electrode;
exciting said cleaning gas in order to [perform a cleaning on at least a portion of said pair of electrodes] remove unnecessary layers caused the first and second vapor depositions from an inside of the reaction chamber,

wherein one of the first and second insulating films comprises a film with a thickness of

16. (Twice Amended) A vapor reaction method comprising the steps of:

preparing a pair of first and second electrodes within a reaction chamber, said pair of electrodes being arranged, substantially in parallel with each other;

placing a substrate in a reaction chamber on said first electrode so that a first surface of said substrate faces toward said second electrode;

introducing a first film forming gas into said reaction chamber through said second electrode;

exciting said first film forming gas in order to form a first film comprising SiO_2 by vapor deposition on said substrate placed in said reaction chamber;

introducing a second film forming gas into said reaction chamber through said second electrode;

exciting said second film forming gas in order to form a second film comprising [phosphate glass] silicon nitride by vapor deposition on said first film in said reaction chamber;

removing said substrate from said reaction chamber after [said vapor deposition] the formation of the first and second films;

introducing a cleaning gas comprising nitrogen fluoride into said reaction chamber through said second electrode;

exciting said cleaning gas in order to perform a cleaning [on at least a portion of said pair of electrodes] to remove unnecessary layers deposited on an inside of the reaction chamber due to the formation of the first and second films.

17. (Twice Amended) A vapor reaction method comprising the steps of:

preparing a pair of first and second electrodes within a reaction chamber, said pair of

of said substrate faces toward said second electrode;

introducing a first film forming gas into said reaction chamber through said second electrode;

exciting said first film forming gas in order to form a first film comprising [SiO_2] silicon nitride by vapor deposition on said substrate placed in said reaction chamber;

introducing a second film forming gas into said reaction chamber through said second electrode;

exciting said second film forming gas in order to form a second film by vapor deposition by vapor deposition directly on said first film in said reaction chamber;

removing said substrate from said reaction chamber after [said vapor deposition] the formation of the first and second films;

introducing a cleaning gas comprising nitrogen fluoride into said reaction chamber through said second electrode;

exciting said cleaning gas in order to [perform a cleaning on at least a portion of said pair of electrodes] remove unnecessary layers formed on an inside of the reaction chamber due to the formation of the first and second films.

21. (Amended) A method of fabricating electronic devices comprising the steps of:

preparing a pair of electrodes within a reaction chamber wherein said pair of electrodes are opposed in parallel with each other;

placing a substrate in a reaction chamber wherein said substrate is held by one of said electrodes;

deposition on said substrate;

introducing a second film forming gas into said reaction chamber through the other one of said electrodes;

exciting said second film forming gas to form a second film by second chemical vapor deposition on said first film, said second film comprising a different material from said first film;

removing said substrate from said reaction chamber after the formation of said first and second films;

introducing a cleaning gas into said reaction chamber through said other one of the electrodes; and

conducting a cleaning of an inside of said reaction chamber by using said cleaning gas to remove layers caused by at least said first and second vapor phase deposition, wherein one of the first and second films comprises silicon nitride.

26. (Amended) A method of fabricating electronic devices comprising the steps of:

preparing a pair of electrodes within a reaction chamber wherein said pair of electrodes are opposed in parallel with each other;

placing a substrate in a reaction chamber wherein said substrate is held by one of said electrodes;

introducing a first film forming gas into said reaction chamber through the other one of said electrodes;

exciting said first film forming gas to form a first film by first chemical vapor deposition on said substrate;

exciting said second film forming gas to form a second film by second chemical vapor deposition on said first film wherein said second film comprises a different material from said first film;

removing said substrate from said reaction chamber after the formation of said first and second films;

introducing a cleaning gas into said reaction chamber through said other one of the electrodes; and

conducting a cleaning of an inside of said reaction chamber by using said cleaning gas to remove layers caused by at least first and second vapor phase deposition, wherein one of the first and second films comprises silicon nitride.